Bonneville Power Administration
Fish and Wildlife Program FY98 Watershed Proposal Form

Section 1. General administrative information

Title **Monitor Water Quality And Quantity In L. Klickitat R. And Its Tributaries**

Bonneville project number or proposal number **8002**

Business name of agency, institution or organization requesting funding
Central Klickitat Conservation District

Business acronym (if appropriate) CKCD

Proposal contact person or principal investigator:

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Subcontractors.

Organization	Mailing Address	City, ST Zip	Contact Name

NPPC Program Measure Number(s) which this project addresses.

NMFS Biological Opinion Number(s) which this project addresses.

Other planning document references.
(1) Washington State Department of Ecology, "Little Klickitat River Basin Fish Habitat Analysis Using the Instream Flow Incremental Methodology", Aug 1990.
(2) Washington State Department of Ecology, Section 303(d) List of Impaired Waterbodies. (3) Washington Department of Fisheries, "Salmon and Steelhead Stock Inventory", 1992. (4) Central Klickitat Conservation District, "1997 Water Quality and Quantity Monitoring Report", October 1997.

Subbasin.
Little Klickitat River

Short description.
Measure water quantity and quality from May through October in the Little Klickitat River and its tributaries to evaluate habitat for fish and other animals.

Section 2. Key words

Mark	Programmatic Categories	Mark	Activities	Mark	Project Types
X	Anadromous fish		Construction	X	Watershed
+	Resident fish		O & M		Biodiversity/genetics
+	Wildlife		Production		Population dynamics
	Oceans/estuaries		Research	+	Ecosystems
	Climate	X	Monitoring/eval.	+	Flow/survival
	Other	+	Resource mgmt		Fish disease
		+	Planning/admin.		Supplementation
			Enforcement	+	Wildlife habitat en-
			Acquisitions		hancement/restoration

Other keywords.
Sampling, Evaluating, Access Private Land

Section 3. Relationships to other Bonneville projects

Project #	Project title/description	Nature of relationship

Section 4. Objectives, tasks and schedules

Objectives and tasks

Obj 1,2,3	Objective	Task a,b,c	Task
1	Monitor Water Temperature	a	Install Onset Loggers, download to computer every four weeks
2	Measure Streamflow	a	Measure physical dimensions and velocity of stream and calculate flow

3	Monitor Water Quality	a	Measure dissolved oxygen levels
		b	Measure PH level
		c	Test for presence of nitrates
		d	Measure turbidity
4	Assess Stream and Riparian Condition	a	Sample aquatic life, measure tree canopy, collect other data

Objective schedules and costs

Objective #	Start Date mm/yyyy	End Date mm/yyyy	Cost %
1	5/1998	10/2000	40.00%
2	5/1998	10/2000	20.00%
3	5/1998	10/2000	30.00%
4	5/1998	10/2000	10.00%
			TOTAL 100.00%

Schedule constraints.

Completion date.
2000

Section 5. Budget

FY99 budget by line item

Item	Note	FY99
Personnel		$6,620
Fringe benefits		$1,655
Supplies, materials, non-expendable property	Already purchased	$0
Operations & maintenance		$750
Capital acquisitions or improvements (e.g. land, buildings, major equip.)	Used surplus utility vehicle from Washington State Motor Pool	$5,400
PIT tags	# of tags:	
Travel		$1,120
Indirect costs		$1,015
Subcontracts		
Other	Annual field trips with students from	$240

	Goldendale and Bickelton public schools	
TOTAL		$16,800

Outyear costs

Outyear costs	**FY2000**	**FY01**	**FY02**	**FY03**
Total budget	$11,720	$12,305		
O&M as % of total	7.00%	7.00%		

Section 6. Abstract

Water quality monitoring began in 1995 and has continued through 1997 at which time funding for the project expired. Three years of data has been compiled and stored. Complete and accurate water quality data is needed to determine what projects can be accomplished to decrease water temperatures or increase flow (most streams tributary to the Little Klickitat River are on the 303(d) list). The monitoring would also show the effectiveness of any projects that are implemented by having water quality data prior to implementation and after. Almost all monitoring is done on private property and there are funds available for cost-sharing with landowners that are willing to cooperate.

The overall objective is to increase water quality, improve fish habitat and remove the streams from the list of impaired waterbodies.

All projects in the sub-basin would be designed to improve habitat for anadromous and resident fish.

All sampling and measuring methods are in accordance with approved practices. The Onset Data Loggers are modern and reliable measuring and recording devices. All of the equipment used in the project is already on hand and is adequate or better for the field testing to be performed.

The project would add three years of data to that which already exists. It is important to have data during a wide range of precipitation years.

The results are compiled and analyzed at the end of each field season and made available to any resource manager or agency interested. The reports are also available to the public.

Section 7. Project description

a. Technical and/or scientific background.

The Little Klickitat River and most of its tributaries have been identified as needing work to increase water quality and quantity. Watershed Coordination Groups composed of private landowners who own property adjacent to the streams are being formed to review recommendations from Technical Advisory Committees (composed of agency professionals from NRCS, Washington Department of Fish and Wildlife, Yakama Nation, etc.). The recommendations would be to implement projects to improve water quality and stream or riparian habitat. Most project work would be accomplished on private property and most of it would be cost shared with landowners. The monitoring we are proposing would help to indicate the degree of success of these projects.

b. Proposal objectives.

The objectives of the proposal are to measure water quality, quantity and habitat components including:

1. Water temperature
2. Stream Flow in cubic feet per second
3. Dissolved oxygen levels
4. PH levels
5. Presence of nitrates
6. Water turbidity
7. Riparian vegetation
8. Organic and inorganic substrate components
9. Insects and fish present in the streams

c. Rationale and significance to Regional Programs.

A similar project is being proposed for streams on the Eastern Klickitat Conservation District which includes eastern Klickitat County and a small portion of Yakima County. The two proposals are dependent upon each other in the sense that they would be accomplished by the same personnel and with the same equipment. Approximately 40 percent of the work would be done on EKCD and 60 percent on CKCD. See EKCD01.doc. No other entity, public or private, is proposing to collect data on local streams as intensively as the Central Klickitat Conservation District. Almost all data collection is done on private property and permission for access has already been secured in almost all cases. This project would complement other projects funded by the Washington Conservation Commission to implement practices designed for water quality improvement. The Little Klickitat River is accessible to anadromous fish. In written opinions by WDFW, many of its tributaries are also used by or accessible to salmon and steelhead. Data collected under this proposal can identify habitat needs and support project implementation, which would improve stream conditions.

d. Project history

Although this has not been a BPA project in the past, it has been ongoing for three years. Funding which was provided by the Washington Conservation Commission for this project has expired. The monitoring began in 1995 and has continued through 1997. Three years of data have been collected and stored. A report consolidating all data collected to date was completed in October 1997 and is available for review by anyone who wishes to do so. It is the opinion of the district that data collection and monitoring needs to continue through years with varying precipitin levels in order to make determinations as to which water quality improvements need to be implemented and which ones are most effective. The ability to measure results is essential in planning and implementing projects.

e. Methods.

Twenty-five sites on the Little Klickitat River and its tributaries would be monitored for water quality and quantity. At each site, initial measurements and estimates beginning in May would include the following:

a. An Onset Data Logger will be placed in the stream where it will measure and record water temperature each hour, continuously until the end of October.

b. The monitoring technician will record the name and location of the stream, a brief description of the weather and the date and time.

c. Aspect and stream gradient.

d. Record surrounding land uses such as forestry, rangeland, farmland or residential.

e. Estimate the amount of local erosion.

f. Measure physical characteristics of the stream including width, average depth and velocity of the water.

g. The existence of dams, culverts or channelization.

h. Canopy cover as measured with a spherical densiometer.

i. Stream or sediment odors.

j. Water temperature, turbidity, dissolved oxygen, PH level and whether nitrates are present in the stream.

k. A sample of the inorganic substrate component (percent of clay, silt, sand, gravel, cobble, boulder or bedrock).

l. An estimate of the organic substrate component (percent of very fine organic matter, coarse plant material, or sticks and wood).

m. A brief narrative of the types and condition of riparian vegetation.

n. A sample of microinvertebrates and fish species observed.

o. A description of the stream channel (entrenched, moderately entrenched, or slightly entrenched).

p. Photographs are taken upstream and downstream from the point of measurement.

Streamflow is calculated using the measurements taken in paragraph f. above. (Stream velocity is measured with a Flow Probe).

After a site has been established, it is re-visited every three to four weeks to continue data collection. During these visits, the following tasks are accomplished:

a. Streamflow is calculated after performing the measurements described in paragraph f. above.

b. Air temperature and water temperature are measured and recorded.

c. Time and general weather observations are recorded.

d. Dissolved oxygen, PH and nitrate levels are measured and recorded.

e. Data is transferred from the Onset logger to a shuttle. The shuttle is a device to download logger data and store it temporarily until it can be transported back to the office. There it is downloaded onto the computer for permanent storage and subsequent analysis.

f. During 1997, seven Onset loggers were placed at various locations throughout the sub-basin to measure and record air temperature at the same intervals that water temperatures were being measured. This was done to determine the effects of high summer temperatures on water temperature. This practice would be continued and perhaps even expanded.

At the end of October each year, the data collected would be added to all of the previous years' data and compiled into a report for peruse by anyone who is interested.

f. Facilities and equipment.

Most of the equipment to do the monitoring is already on hand. Initial purchases and periodic updates have provided the district with almost 50 Onset Loggers as well as measuring equipment and testing kits. We have clinometers, compasses, measuring tapes, spherical densiometers, a camera, a flow probe (for measuring water velocity) and Hach test kits. Computers and programs to store and process the data is in place and operational. Through this grant, we are requesting funds to purchase a used utility 4X4 from among surplus vehicles at the Washington State Motor Pool in Fife, WA. This grant would pay for approximately 60 percent of the vehicle while EKCD01 would finance the remaining 40 percent. All other major facilities and equipment have been purchased under a previous grant from the Washington Conservation Commission. During the past three years, the USDA Natural Resources Conservation Service has provided a vehicle and fuel to the district for use in the monitoring program in conjunction with the previous grant. Although we cannot count on the vehicle in the future, we might be able to negotiate its use on a season-by-season basis. For this reason, we would prefer this request for purchase not become the difference between our application being approved or disapproved.

g. References.

Section 8. Relationships to other projects

The Central Klickitat Conservation District has a grant from the Washington State Conservation Commission to form Watershed Working Groups comprised of private landowners to plan and implement projects designed to improve water quality on private property. There would also be a Technical Advisory Committee made up of resource management professionals from NRCS, WDFW, Yakama Nation, Washington DNR and perhaps other agencies to advise the working groups on needs and designs. The water quality monitoring activities being applied for under this grant would ensure continuous data by which to prioritize needs for new projects and monitor results of completed projects. Also being applied for at this time is funding for a similar project on the adjacent Eastern Klickitat Conservation District for monitoring water quality in the eastern portion of Klickitat County (see EKCD01). The work would be accomplished by the same personnel as both districts' headquarters are in the same office and they share a single staff.

Section 9. Key personnel

The Central Klickitat Conservation District, like all conservation districts is supervised by a board of five supervisors who are landowners in the district. Three are elected by other landowners and two are appointed by the Governor's office. The project for which we are applying would be managed by Dave Clayton, the only full-time employee on the district. The monitoring would be performed under his supervision and done by a technician to be

hired during the field season. Training would be provided by the USDA Natural Resources Conservation District who has two resource management professionals and one technician in this office. If other expertise is needed, it would be provided by NRCS personnel at other offices in the state of Washington or by resource management professionals with other agencies in our area.

Section 10. Information/technology transfer

A report would be compiled annually consolidating all information collected in previous years with the current year and made available to interested agencies and organizations. It would be available to any member of the public as well. The district would use the data from the reports to determine trends, results of water quality improvement projects, and for planning new projects. The district routinely sponsors field trips for area middle schools to teach students about resource conservation practices, including this type of work.